EcoStruxure Power Monitoring Expert 9.0

What's New?
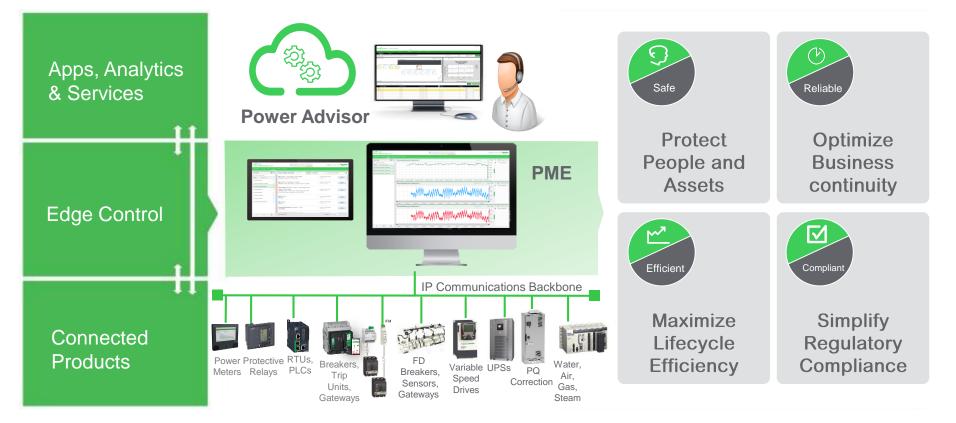
Toronto PLUG 2018

Juan Arias
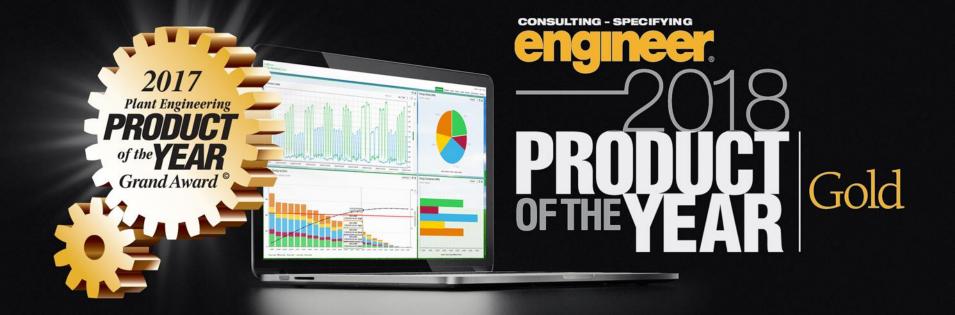
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PME the Core of EcoStruxure Power

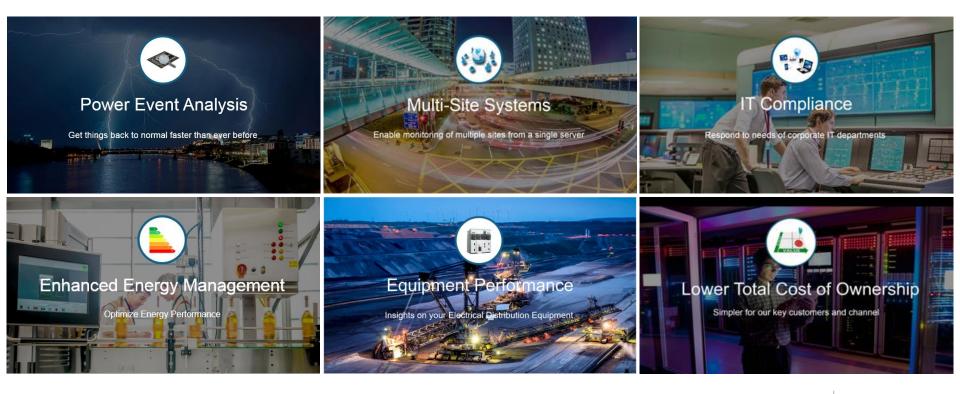Bringing Edge Control to Energy and Power Management

PME 9.0 Major Innovation Themes

Power Event Analysis
Get things back to normal faster than ever before

Multi-Site Systems
Enable monitoring of multiple sites from a single server

IT Compliance
Respond to needs of corporate IT departments

Enhanced Energy Management
Optimize Energy Performance

Equipment Performance
Insights on your Electrical Distribution Equipment

Lower Total Cost of Ownership
Simpler for our key customers and channel

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Power Events Analysis

Get things back to normal faster than ever before

Power Events Analysis

The Right Information at the Right Time

- *"I need to quickly see the impact of incidents that effect my facility. I have too many alarms to understand what is really going on. I don't want to be distracted by irrelevant information when I am trying to restore operations"*
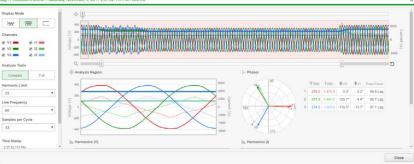
- Faster incident analysis by automatic grouping of related alarms.
- Make faster decisions, with key alarm information - such as disturbance direction - available at a glance
- Ensure important information is not lost in a flood of data with intuitive and powerful alarm filtering, searching, and categorization.
- See what you've missed with alarm counters

Connected Devices + **Time Synchronization** + **Smart Alarms, Timeline and waveform analysis**

Demo

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IT Compliance

Operation in the most demanding IT environments

IT Compliance

Operate in Demanding IT Environments

- *"As the IT department, we need our facility systems on our IT network to comply to our IT policies and minimize risk from cybersecurity threats that could impact our operations or reputation"*

- Support for commonly recognized IT policies such as Windows Active Directory to enable centralized user management and security policies.
  - Central user management
  - Secure password change policies
- Comply with corporate cybersecurity directives and align with industry-standard best practices

Cybersecurity **+** **Windows Authentication** **+** **100% HTML5**

Windows Active Directory Integration

PME supports integration of Windows users and groups

- Login to PME using your windows credentials (active directory or local users)

- Single sign on (SSO) support.

- Enforce password policies via Windows (complexity, expiration, etc)

- Support for both Windows and local PME users

- Compliance with common IT requirement

Hi! I'm Windows user Jane

Is Jane in your records?

Yes! Authenticate

Microsoft
Active Directory

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Cybersecurity Compliance

PME 9.0 is designed for IEC62443 compliance at the component level:

- **IEC62443-4-1**: Assess a supplier's product development lifecycle for industrial automation and control systems (IACS)

- **IEC62443-4-2 (SL1)**: Defines the security requirements for the components of an IACS

Key prescription item. Make sure to specify this requirement

General

IEC 62443-1.1	IEC TR-62443-1.2	IEC 62443-1.3	IEC TR-62443-1.4
Terminology, concepts and models	Master glossary of terms and abbreviations	System security compliance metrics	IACS security lifecycle and use-case

Policies and procedures

IEC 62443-2.1	IEC TR-62443-2.2	IEC TR-62443-2.3	IEC 62443-2.4
Requirements for an IACS security management system	Implementation guidance for an IACS security management system	Patch management in the IACS environment	Security program requirements for IACS service providers

System

IEC TR-62443-3.1	IEC 62443-3.2	IEC 62443-3.3
Security technologies for IACS	Security levels for zones and conduits	System security requirements and security levels

Component

IEC 62443-4.1	IEC 62443-4.2
Product development requirements	Technical security requirements for IACS components

IEC

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Multi-Site Power Management Solution

Empower Users Without Compromising Security or Usability

Multi-Site Support

Localized Role Based Access Control

- *"I manage multiple locations from one system, and I need to let local users view the data from their site without being overwhelmed by all the data from the other sites"*

- For local users in a system connected to multiple sites, enables a user experience like having their own system
- Enables restriction of users to authorized sources and content based on their Group.
- Easy setup and administration.
- Simplifies user management with Active Directory integration.

User Groups **+** **App Shared Library** **+** **Multi-Timezone**

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Role-Based Access Control (RBAC)

PME Groups

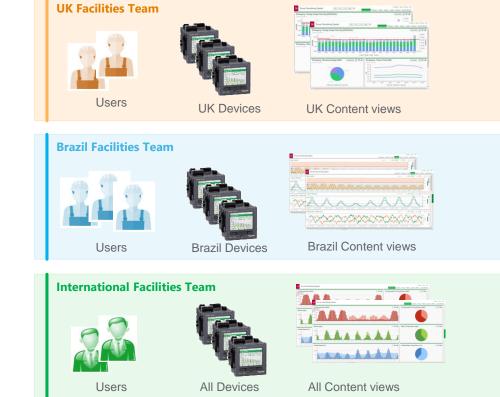A user group is a set of users with access to the same list of devices/sources and the same shared web content.

- Users of a group can have private content (dashboards, diagrams, alarms and reports)

- Users can belong to multiple groups

- Users can be Windows or native PME

- PME groups are not required if content partitioning is not needed

UK Facilities Team

Users   UK Devices   UK Content views

Brazil Facilities Team

Users   Brazil Devices   Brazil Content views

International Facilities Team

Users   All Devices   All Content views

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New and Improved Advanced Applications

The Ultimate Energy and Power Management System

PME 9.0 + ION9000

Power Events Analysis

+

Power Quality Performance

+

Power Quality compliance

+

Backup Power Testing

+

Utility Bill Verification

+

Energy Usage and Performance

- From microseconds to years of data analysis of your power network

- Verify compliance with most common PQ standards or customize to meet local regulations

- Device specific to system wide event analysis

- And much more…

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Energy Analysis & Performance
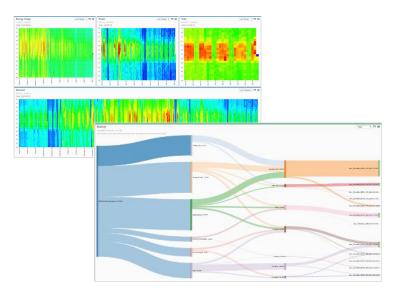
Powerful Energy Management Tools

- *"I want to analyze energy usage and performance indicators for my facility or building against a baseline and monitor and verify systematic improvement initiatives like ISO50001"*
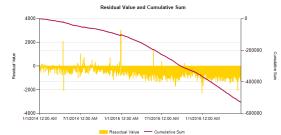
- Understand better what influences your energy usage
- Create energy usage models and compare actual consumption against expected
- Accurately measure energy savings in the presence of changing variables like weather or production.
- Track KPIs such as Energy Intensity (kWh/unit) or Coefficient of Performance (COP)

| **Energy Analysis Module** | **+** | **Advanced Usage Analysis Gadgets** | **+** | **Consumption and Scheduled alarms** |

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Energy Analysis Module

Improve operational efficiency, energy performance and compliance (ISO50001) with **new** and **improved** functionality:

- Energy modelling

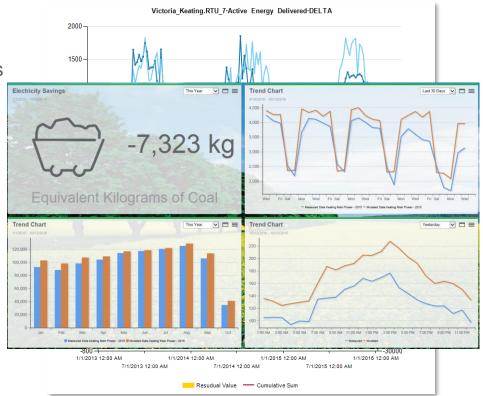- KPI/EnPI calculation and tracking as per ISO50006 requirements

KPI: Key Performance Indicator
EnPI: Energy Performance Indicators
ISO 50006:2014: Measuring energy performance using energy baselines (EnB) and energy performance indicators (EnPI)

Energy Modelling

Understand better the influence of external factors and schedules on energy usage.

- Meet ISO50001 and SEP standards requirements for baselining and tracking energy performance

- Quantify **savings or losses** caused by any system/behavior change

- Get **notified** if usage is **outside expected values** as per model

- **Forecast** power/energy usage

SEP: Superior Energy Performance (US Department of Energy)

KPI Engine

Production Line Efficiency KPI presentation slide.

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PME 9.0 Turns Historical Data into Insights

Smart Setpoints

Is my current energy usage typical for this hour of the day and this day of the week based on my last 6 months usage?

I need to be notified if my current demand is higher than the demand values in the last 6 months

Is my current harmonic distortion 5% higher than my average in the last week?

Notify me when my daily water usage is 20% higher than the average for the last 3 weeks

Smart Setpoints

Setpoints Based on Usage Analytics

Monitor values being logged in the database (raw of aggregated) and alarm on exception rules and time based comparisons

- Raw data (datalog values, 15 min, 10min, etc)

- Aggregate hourly or daily

- Over/Under Active conditions vs Average, Maximum or Std deviation (σ)

- Comparison range for up to 2 years back

- Evaluate for all values or same hour of day and/or same day of week

Electricity Consumption (Smart Setpoint)
Compare recent datalog consumption data against a relative setpoint. Creates Electricity Alarms.

Edit Smart Setpoint   x

Smart Setpoint Type

Highest Value in last 30 days	Abnormally High Value
Lowest Value in last 30 Days	Abnormally Low Value
Highest Value in last Year	Abnormally High Value for similar time of day
Daily Value higher than 50% above Average	Abnormally High Value for the day of week
User Defined	

Setpoint Parameters

Type and Interval   Alarm Active When

| Aggregated ▼ | Hourly ▼ | | Over ▼ | 2.66 | × | Standard Deviations from Mean (σ) ▼ |

Comparison Range   Comparison Filter

| 6 ▼ | Months ▼ | | Same Day of Week and Hour of Day ▼ |

Cancel   **Apply**

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Alarm Schedules

- Part of the workflow to configure software based alarms

- Schedules define when software based Alarm rules are active or inactive

- Define active or inactive hours per day

- Apply multiple schedules to an Alarm Rule

Usage Analysis Dashboard Module

6 New Gadgets!, Single Licence, Easy Supply Chain

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Equipment Monitoring & Performance

Insights on your Electrical Distribution Equipment

- *"I want to keep track of key operational parameters for electrical equipment. Be notified of configuration changes, lifespan reduction, or risk/safety hazards"*

- Ensuring proper breaker operation and fault isolation avoiding safety hazards
- Detecting abnormal conditions (e.g Temperature) that represent a risk to operations.
- Operate breakers remotely to minimize exposure to arc-flash risk
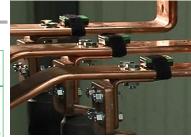- Monitor and locate circuit insulation faults (e.g protect patient safety during operations

Breaker Performance Module + **Backup Power Module** + **Condition Monitoring**

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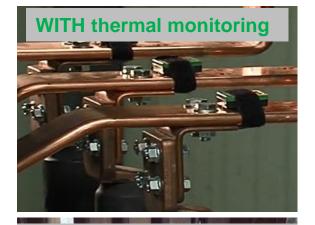
Continuous Thermal Monitoring

22% of fires in a facility are due to electrical failures

WITH thermal monitoring

WITHOUT thermal monitoring

Avoid electrical fires by **detecting and alarming on abnormal temperature** rise in electrical distribution equipment.

24/7 continuous monitoring in MV and LV equipment to provide early detection of abnormal temperature rises.

Reduce total cost of ownership by 60% throughout the lifecycle by reducing periodic thermography.

Wireless, self-powered sensors (no batteries) can be deployed anywhere, including in areas that are difficult to see with a thermal camera

As busbar joints degrade, they can overheat and cause a fire risk.
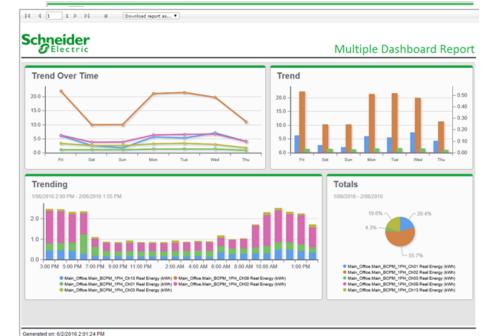
Reduce recurring manual thermal imaging costs

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Demo

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Dashboard Report: Custom Reports Made Easy

Turn any PME Dashboard into a report

- Schedule and subscribe in any of the existing report formats (pdf landscape/portrait, Excel, tiff)

- Two Reports, Landscape & Portrait

- Allows for multi dashboard/slideshow selection, each selection is on its own page

- Allows for an additional custom page where any link can be entered

Grid Gadget

- Real time tables functionality embedded in Dashboards

- **Hierarchy support!**

- Default Templates for quick selection

- Configurable row/column headers (Sources or Measurements)

- Improved diagnostic information:

  - Disabled, Comm Error, Measurement not supported, Stale, etc.

- Supports numbers, Boolean, date/time and strings.

Grid Gadget

Last Update: 11/20/2017 10:39:12 AM   Update in 0:07

Sources	Voltage A-B (V)	Current A (A)	Real Power (k...	Power Factor
Substation1.feeder_2	0	8	2	74.7
Substation1.Main_Feeder	0	8	2	-87.3
Substation1.Main_Meter	0	83	22	-87.3

Grid Gadget

Last Update: 11/20/2017 10:41:03 AM   Update in 0:04

Measurements	Substation1.feeder_2	Substation1.Main_Feeder	Substation1.Main_Meter
Voltage A-B (V)	0	0	0
Current A (A)	8	8	83
Real Power (kW)	2	2	22
Power Factor	74.8	-87.3	-87.4

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New Productivity Tools

Engineering Tools For the End Users and Channel

Efficient Commissioning and Deployment

Increased Engineering Efficiency

- *"I want minimize the engineering deployment and configuration costs to maximize the profitability of my projects"*

- Consolidation of technical documentation into a single guide that covers the lifecycle of the project
- Easier and faster creation of third party device types for Modbus and OPC.
- Out of the box components and wizard process for DDD TVD deployment
- Manual data editor, smart gap filling, creation of sources and measurements, etc.
- Tool to upgrade, migrate and backup the PME system

| PME System Guide | **+** | Simplified TVDs (DDD) | **+** | Device Type Editor | **+** | Manual Data Editor | **+** | CM Tool 9.0 |

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Technical Documentation 2.0

Comprehensive consolidation and simplification of previously siloed technical documents.

- Improved search and elimination of information gaps

- Easier to navigate and find information when you need it

- Just-in-time procedures to reduce task completion time

- Easier to find related and supporting information without having to obtain related documents

- **Single Document: PME System Guide**

One master guide to rule them all…

PME documentation before 9.0

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